

# Spectroscopy and Photometry Report

*Director – Jerome Jooste*

*Date: 03/08/2015*

## **Introduction**

After taking the position of director of the photometry and spectroscopy section in 2014 it became very clear how few people were engaged in photometry and spectroscopy. Looking further afield to draw a reasonable comparison it is clear that on a global scale there are very few observers participating in these two fields. I took some time to research the reasons and came to the conclusion that there are several factors that mitigate the local amateurs from blame of lethargy and disinterest. The ASSA website was then updated with the intention of affording members sufficient information via links to stimulate interest.

## **Accurate Data**

Both photometry and spectroscopy are areas where amateurs can add to data used by professionals. That said it must be considered that to provide useful data it has to be prepared with great care and stand up to rigorous scrutiny. This in itself is daunting and is also a factor that may deter members from participation. Objects such as bright transients that are at far southern declinations immediately puts our sparse bits of data in the limelight and not hidden in the throng of observations which is often the case for targets far north of the celestial equator. Also careful preparation of the setup to capture accurate data can be time consuming and takes away what little time we have for general observing and fun.

## **The Cost**

Though DSLR's are mostly quite affordable and can be used successfully for photometry they are not the ideal camera for good spectroscopy and fall short due to the lack of a monochrome sensor. The requirements for photometry are minimal and can even be done without an equatorial mount though this is not ideal. For spectroscopy the requirements are very different. Over and above the main camera there is the spectrograph, a second camera for autoguiding as well as a good GEM for accurate tracking to consider when preparing your budget. This very quickly starts adding up to a large sum of money. With this in mind I felt it fair to give everybody an opportunity to learn how to process stellar spectra by supplying links to Fits format images taken by myself and placed in my dropbox. This at least puts basic spectroscopy within the reach of anybody willing to take the time to learn the processes and software.

## **Future Developments**

With regard to future developments it is intended to also supply images for those wanting to learn photometry but a plan has not yet been finalised on how best to approach this and whether it is fact a feasible project. The AAVSO and Variable Stars South have excellent educational and observing programs and it will be a waste of time trying to duplicate the work done by these established organisations.

## **Achievements**

The high point of 2015 to date has to be Nova Sgr 2015 no 2. This transient was discovered on March 15 at mag 6 and the first photometric measurements and spectroscopic analysis

started on March 16. Johannesburg was hampered by cloud and I was able to get my first reasonable low resolution spectrum on the morning of March 17 during a short break in the cloud. I then published this low resolution spectrum on the Yahoo Star Analyser and Spectroscopy forums. Sky and Telescope subsequently published this spectrum a few days later. The publication in S&T was fortuitous and important in that it showed that South Africa is also engaged in amateur spectroscopy in the southern hemisphere.

### **Conclusion**

Visual observation of variable stars is still the method preferred by most observers worldwide and the shift to the use of digital cameras seems to remain very slow. I believe with sufficient understanding this hurdle can be crossed. Interest in spectroscopy from members has been slight with Percy Jacobs and myself occasionally sharing data there is the hope that other members will in time take on this interesting and challenging aspect of amateur astronomy.